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STATE WATER QUALITY-BASED TOXICS CONTROL  
PROGRAM REVIEW GUIDANCE

Office of Water Enforcement and Permits  
Office of Water Regulations and Standards

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## Section I: Introduction

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### Background

Control of toxic pollutants (both Clean Water Act §307(a) priority pollutants and others) in surface waters is one of the most pressing problems currently facing Federal and State regulatory authorities. Solutions to surface water toxics problems present long-term institutional and technical challenges that require strong State program approaches in many different areas. Various national guidance documents and policies have addressed toxics control; particularly, the national policy dated March 9, 1984 (49 FR 9016) and the Technical Support Document for Water Quality-based Control of Toxics (September, 1985).

The Clean Water Act (CWA) and its most recent amendments, the Water Quality Act of 1987, provide a strong statutory basis and additional deadlines for activities to identify and control toxic pollutants. For example, under §304(1) of the CWA as amended, States are required to identify all waters impaired as a result of point source discharges of toxic pollutants and to develop "individual control strategies" for controlling point sources of §307(a) toxics by February 4, 1989. Other provisions of the CWA require States to control all sources of toxicity. Since the §307(a) pollutants are only some of the toxic pollutants of concern, as a matter of policy EPA is asking States to develop controls for waters with known toxicity problems due to any pollutant, giving the same priority to these controls as for controls where only §307(a) pollutants are involved. To be approved by EPA, the strategies must require the implementation and achievement of necessary toxics controls (i.e. compliance with permit requirements limiting toxics and toxicity) within three years of EPA approval (or by June 4, 1992, whichever is earlier). Also, under §303(c)(2) States are to adopt criteria for toxic pollutants, the discharge or presence of which in the affected waters could reasonably be expected to interfere with those designated uses adopted by the State.

EPA recognizes that the identification of waters impaired by toxicants and the development of individual control strategies will be a difficult challenge for most States, particularly in light of the short time frames allowed by section 304(1) of the CWA as amended. Therefore, EPA is expecting that these requirements will be met in two phases. In the first phase, all known or readily identifiable toxicity problems from point sources will be addressed. Controls for section 307(a) pollutants must be developed by February 4, 1989 under section 304(1) of the CWA. As a matter of policy, controls for other pollutants (including chlorine, ammonia, and whole effluent toxicity) will be given the same priority as for controls where only section 307(a) pollutants are involved.

At the same time, States and Regions should continue to collect new data where current data are inadequate, to identify currently suspected or unknown problems. These new data will then form the basis of the second phase of toxics control. The process of identifying waters and regulating toxics discharges will therefore require a several year commitment and strong State and EPA institutional frameworks. Important facets of this framework include State water quality monitoring programs, State water quality standards, State and federal permit regulations and technical guidance.

In order to insure that all States are equipped with the necessary tools to make significant progress in controlling toxics and to meet the requirements of the CWA and amendments, EPA Regions will conduct broad, comprehensive reviews of State programs for identifying and controlling toxic discharges. Regional Offices will be tracked on their conduct of these reviews (and development of Action Plans to address any needs) in the EPA Strategic Planning and Management System (SPMS) in FY 1988. The Agency's objective in reviewing State toxics control programs is to identify areas of needed improvement or assistance, and to help ensure a degree of consistency among State approaches, while at the same time allowing sufficient room for innovative State approaches and flexibility in dealing with specific local problems.

Based on discussions during the review, Regions and States will identify action items which need follow-up. After the reviews are completed, Regions will work with States to develop clear action plans which will include the steps that States will take to equip their programs to identify and control toxics problems related to point sources. The action plans are meant to be development strategies and are subject to review and modification as they are implemented. They do not create any new legal obligations for the States. However, individual action items in a plan may include corrections in program deficiencies that are required by existing law or regulation. Where this is the case, EPA may have the authority to require these corrections.

#### Purpose of State Toxic Program Reviews

The purpose of this document is to provide technical assistance to the Regions in conducting qualitative reviews of State toxic control programs. The objective of the program reviews is three-fold. One short-term objective is to strengthen the institutional framework for State toxics control programs to equip these programs to meet the new statutory requirements and deadlines of §304(1) of the CWA and the Agency's policy of assuring that controls be developed for waters with known toxicity problems due to any pollutant, giving the same priority to these controls as for controls where only section 307(a) pollutants are involved. A second short-term objective is to determine the States' progress in complying with these new statutory and program requirements. A long-term objective

is to support ongoing toxics control activities and to help ensure that States develop fully effective programs for progressively addressing toxic pollutants in surface waters.

This guidance is intended to be used as the basis for the State toxics program assessments to be conducted as a one-time effort in FY 88. Following the conclusion of the effort, EPA plans to discuss with States the value of the assessment process and its success in meeting the objectives above. Based on these discussions and on suggestions received as the assessments are conducted, EPA and the States may again conduct State toxics program assessments at some time in the future.

### Scope

This document describes both the procedural (Section II) and technical (Section III) aspects of program reviews. The technical portion of this guidance does not establish any new policy or guidance. Rather, it draws upon existing Agency policy and guidance on the various activities that are part of the "standards-to-permits" process. Program areas covered by this document include: (a) legal mechanisms, (b) water quality standards, (c) identification of waters, (d) wasteload allocations, and (e) permitting. This guidance focuses almost exclusively on control of point source discharges of toxics to surface waters.

Knowledge of the water quality-based toxics control program is assumed. The guidance is not designed to teach the program. Familiarity with the Technical Support Document for Water Quality-Based Toxics Control, September 1985 (TSD), and the Permit Writers Guide to Water Quality-Based Permitting for Toxic Pollutants, Spring 1987 (PWG), is essential to understanding and using this guidance. The reader should also be thoroughly familiar with the Guidance for Implementation of §304(1) of the Clean Water Act as Amended [§308(a) of the Water Quality Act of 1987] which describes in detail the specific steps which States should take in complying with this section of the CWA amendments.

### Pilot Reviews

This guidance was based in part on experience gained from pilot reviews of four State toxics control programs. The pilots revealed variations among the four States (Delaware, Louisiana, Montana, and Michigan) in the levels of problem assessment, levels of implementation of toxics controls, and program strengths and weaknesses. Action plans which these States have developed or will be developing in response to the reviews will help strengthen the toxics control efforts already underway. The assistance of the four States in helping develop, test, and improve the review process is greatly appreciated.

## The Checklist and Fact Sheet

The basic tools which have been developed for reviews of State programs are the "fact sheet" and the "checklist." The fact sheet (Appendix A) addresses direct and indirect dischargers and provides the reviewer with information concerning the number and type of point sources within the State and the types of controls currently in place. The checklist (Appendix B) is designed to document the key ongoing elements of a toxics control program in a logical progression through the standards-to-permits process, including questions that refer to the specific requirements of the CWA of 1987. Detailed guidance on the use of the checklist is presented in Section III.

## Section II: The Review Process

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Since Regions will be assisting States to develop Action Plans as soon as possible, but no later than the end of FY 1988, the Regions should plan to complete all State program reviews by the start of the third quarter of FY 1988. Each review should be conducted in accordance with this guidance and should include the specific review of the State's progress towards fulfilling the toxics control requirements of the Water Quality Act. Each review should present findings specific enough to provide an appropriate basis for specific Action Plans.

This section describes the suggested process for conducting a State review. Before conducting the review, a review team should be assembled and background materials and information collected to provide the EPA Regional staff with a foundation for discussion of the State's toxics control program.

### Review Team

The review team, consisting of Regional water quality and NPDES permits staff, should have strong backgrounds and expertise in their respective program areas. Additional EPA personnel may be appropriate, for example, from the offices of the Regional Counsel, Compliance, or Environmental Services. A team leader who serves as EPA coordinator with the State is responsible for preparation, conduct of the review, and follow-up. The team leader should arrange to meet with the State's water quality planning and NPDES permits staff counterparts.

### Review Preparation

The following is a list of suggested materials to be gathered for the review:

- o State statutes, regulations, policy and guidance
- o Written State/Regional toxics strategies
- o §305(b) report
- o Projection of toxics problems from other data sources, if available (The Monitoring and Data Support Division in EPA headquarters is developing computer software that will summarize and report available data related to toxic pollutants as a tool which States may use to help manage their toxics control programs.)
- o PCS (Permit Compliance System) summary information
- o Permit program audit reports and permit quality reviews
- o Other relevant information

The team should review and be thoroughly familiar with as many of the above sources of information as are available for the State. It is advantageous to collect documents

which describe each of the program areas presented in the checklist sections. If a State has developed a toxics control strategy, this may be used as the focal point for the review.

Checklist questions and fact sheet information can be modified, as necessary, to accommodate unique and unusual State approaches to toxic control.\* To the extent possible, these changes should be made prior to the review. Copies of the checklist and fact sheet, this guidance, and any other background materials should be provided to the team members. Team members should be briefed on procedures, meeting schedules, and the format of the review follow-up.

The team leader should notify the State in writing after the review has been tentatively scheduled with the State staff. At least three weeks notice should be given to the State to allow time to gather relevant information and to plan schedules for meeting attendance. The letter to the State should discuss the purpose of the review and provide a copy of the checklist and fact sheet. The letter should also note that the review team will expect the State to have completed the fact sheet, gathered documentation, and prepared initial responses to the checklist before the review visit.

Preparation of the State staff on what to expect during and following the review should be conducted before the visit. This should consist of a brief introduction of purpose and discussion of the expected products: the action plan and revised toxics control program. This preparation may be conducted through correspondence, telephone contact, or a pre-visit.

### The Review

- o Who: Review Team, State staff (managers invited, but attendance is optional)
- o How Long: One to two days, depending upon the depth of discussion necessary

The review begins with a fact sheet to obtain information and background statistics on the State's program. (See Appendix A.) The fact sheet is intended to document basic information on program delegation, and the numbers and types of dischargers, as well as to serve as an overview of toxicity controls within the State's NPDES program. The questions are straightforward and no guidance is necessary to complete the fact sheet. Several of the statistics requested in the fact

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\* For example, some States are already in an enforcement mode for water quality-based toxicity limits, and Regions may wish to include questions on those States' compliance monitoring and enforcement procedures.

sheet may not be currently tracked by permitting authorities and therefore may not be readily available. However, the State should provide its best estimate for each response.

Next, the review should proceed through the checklist. The checklist itself is divided into five subsections which ask specific questions regarding the State's approach to toxics controls (see Appendix B.) Review team members should proceed through the checklist, recording the answers to each of the questions. Team members may alternate in asking the questions in the various checklist sections according to their expertise. In addition, team members should summarize agreements and action items at the conclusion of each checklist section, while the discussion is still fresh, rather than waiting until the conclusion of the entire review. Guidance on the use of the checklist is presented in Section III.

The review team should conduct a final exit-briefing at the conclusion of the review visit lasting approximately one-half hour. The purpose of the exit briefing is to provide an overview of the State program as perceived by the review team. This overview should include notable strong points as well as areas in need of strengthening, and should include confirmation of all agreements and action items. Finally, the review team should explain the next steps in the review process, including what both EPA and the State are expected to do.

#### Follow-Up

After the review is completed, Regions will work with the States to follow-up on the implementation of the action items agreed upon during the review. To do so, Regions will work with States to develop clear action plans. Each action plan will include the steps which the State will take to identify and control toxics problems related to point sources. Each action item will also include the steps, if any, that the State should undertake in order to ensure compliance with the requirements of §304(1) and §303(c)(2)(B) of the CWA as amended. This includes compliance with the April 1, 1988, submittal date in the §304(1) Guidance for the initial listing of waters known or suspected of being impacted by toxic pollutants and the statutory deadline of February 4, 1989, for the submission of final lists of waters requiring controls for point source discharges and individual control strategies.

Primary responsibilities of the various follow-up activities may be summarized as follows:

##### EPA Review Team:

- o Summary of State Toxics Control Program
- o List of Action Items
- o Letter to State agency (transmitting above)

State Agency:

- o Action Plan in response to list of Action Items
- o Revised toxics control program based on Action Plan
- o Program implementation

EPA Follow-up: Summary, Action Items & Letter

The EPA review team should first prepare a concise summary of the findings of the review. The summary has several purposes. It serves to document the results of the checklist review and is therefore the basis for the list of Action Items. It also serves as documentation for future reference in understanding a State's program. Finally, when this summary is transmitted to the State for review, the State has the opportunity to confirm that the summary accurately reflects the State program and that the conclusions drawn are therefore appropriate.

The summary should clearly identify the action items developed and discussed with State officials during the review. These action items may be relatively general or they may be specific, depending on the agreements reached during the review visit and on the nature and scope of the State actions. The review team may also need to consider supplemental information following the review and to develop additional action items if appropriate. The review team should be as clear as possible in stating the action items because in some cases these items will then be used as the basis for the State action plan.

A letter to the State Agency should transmit the summary of findings and the list of Action Items. It should also contain a schedule for preparation and submittal of the State Action Plan to the EPA Regional Office. An example of the State program summary, list of action items and transmittal letter appear in Appendix C.

State Follow-up: Action Plan and Revised Toxic Control Program

The Action Plan represents the State's response to the Action Items identified by EPA, and will serve as the State's "blueprint" for revising its toxics control program. All State Action Plans are to be completed by the end of FY 1988. The Action Plan should clearly identify the following areas corresponding to each of the Action Items:

- o Explanation of the proposed activity and any special considerations in completing it (e.g., resource constraints, public notice requirements, advertising for contract assistance, contingencies based upon grant funding, etc.)
- o Final product to be derived from the activity (e.g., State regulation, State guidance document, new State

criteria, memorandum of understanding, etc.)

- o Proposed schedule for completing the activity.

The actions to be taken in accordance with the Action Plan should be achieved through revision of the appropriate sections of the State toxics control program and accompanying documentation. The documentation need not be lengthy and may incorporate specific program elements by reference. Because the various elements of a State's toxics control program are interdependent and mutually supportive, a significant change in one element of a State program may require corresponding adjustments in related areas of the program. For example, promulgation of new additional numeric criteria for toxic pollutants in the water quality standards program would require corresponding adjustments in the wasteload allocation and permitting programs.

### Section III. Technical Guidance for the Checklist

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This section provides technical guidance on the use of the checklist (Appendix B). Each of the checklist questions is presented, and followed by a "USEPA Perspective", and occasionally a "Discussion" section where the question needs elaboration. "Bullet" points are aids to stimulate discussion and do not necessarily reflect inclusive or mutually exclusive answers.

"USEPA Perspective" and "Discussion" information is drawn from current EPA policy and guidance and includes references to specific documents as appropriate. Lack of State conformance with an individual programmatic "USEPA Perspective" may be appropriate in the context of an interdependent and mutually supportive framework of water quality-based toxics control program areas.

Section III is divided into five subsections which should be reviewed in order: A) State Authority and Legal Mechanisms for Toxics Controls, B) Water Quality Standards, C) Identification of Waters in Need of Toxics Controls, D) Exposure Assessment and Wasteload Allocation Procedures, and E) Effluent Characterization and Permitting Procedures. Questions (6, 15 and 29) addressing the State's progress in complying with the specific requirements of the CWA, as amended in 1987, are included.

#### A. State Authority and Legal Mechanisms for Toxics Control

The purpose of this subsection is to document and evaluate the authority and institutional mechanisms used by the State to control toxics, as well as their scope and coverage, and potential or existing problems or conflicts.

#### QUESTION 1:

UNDER WHAT LEGAL MECHANISM(S) IS SURFACE WATER TOXICS CONTROL INSTITUTIONALIZED?

- State Law
- State Regulation
- State/Regional Policy
- State/Regional Guidance

#### USEPA Perspective

The State should have clear and adequate legal authority for establishing water quality-based toxics controls. Policy or guidance should supplement or interpret the law or regulations, and should not be relied upon as the sole mechanism for requiring toxics

controls.

### Discussion

Some States rely on broad laws with specific interpretive guidance or policies, while other States rely on more specific statutory authority. While many States believe that less specific, less formal mechanisms provide desirable flexibility, the most effective way to ensure that toxics controls are legally binding and will not be subjected to administrative and/or legal challenge in permit proceedings is to formalize programmatic authorities in law and/or regulation.

### QUESTION 2:

DESCRIBE THE DEPTH AND COVERAGE OF THE STATE'S TOXICS CONTROL AUTHORITY AND LEGAL MECHANISM(S).

- standards to permits process
- aquatic life and human health protection

### USEPA Perspective

The control authority or mechanism should include both authorities and procedures for a standards to permits process. The authority should be protective of aquatic life and human health. Where the NPDES program has not been delegated to the State, State authorities should cover all areas for which the State has responsibility under the State/EPA agreement.

### QUESTION 3:

WHAT INSTITUTIONAL DEFICIENCIES EXIST WITHIN THE STATE'S TOXICS CONTROL PROGRAM? WHAT PLANS ARE THERE TO ADDRESS THE DEFICIENCIES?

### Discussion

An institutional deficiency could be a conflict between the missions or institutional control mechanisms of different State agencies with separate responsibilities for toxics control. For example, the State department of health may be responsible for human health protection while the department of natural resources is responsible for aquatic life protection, and this may result in confusion or gaps in water quality regulation. Other deficiencies could include ambiguous or inadequate statutory authorities, outdated permit regulations, inefficient permit appeal processes, etc.

## B. Water Quality Standards

This subsection reviews the State's water quality standards program as it relates to toxic pollutants. The questions address the coverage of the State's existing water quality standards in the areas of aquatic life and human health, how numeric and narrative criteria are used, the scope of the criteria (acute and chronic), and procedures for criteria development.

Guidance on the review of State programs to meet the additional requirements of Section 303(c)(2) of the CWA regarding numeric criteria for toxic pollutants is contained in Question 6.

### QUESTION 4:

WHICH OF THE FOLLOWING ARE PROTECTED IN STATE WATER QUALITY STANDARDS?

- aquatic life
- human health
- terrestrial animals (wildlife and livestock)
- terrestrial plants (irrigation)

### USEPA Perspective

Water quality standards should be ambient standards designed to be protective of aquatic life and human health. Coverage of terrestrial animals and plants is also desirable.

### Discussion

The focus of most water quality standards is the protection of aquatic life. State standards should also include human health criteria for both threshold and non-threshold chemicals to protect designated uses. Non-threshold chemicals are cancer causing chemicals with no known safe level. For these chemicals a risk level (e.g.  $10^{-4}$ ,  $10^{-5}$ ,  $10^{-6}$ ) should be selected by the State. Human health criteria should address all potential routes of exposure including drinking water, ingestion from swimming and ingestion from fish and shellfish (i.e., bioaccumulation), consistent with the designated uses.

### QUESTION 5:

WHAT NUMERIC CRITERIA FOR TOXICS ARE FORMALLY ADOPTED IN STATE STANDARDS?

- specific numbers in State standards
- in the absence of State numeric criteria, a process for deriving specific numeric criteria is promulgated

- in State standards
- reference to Federal criteria [304(a)] in State standards
- none of the above.

#### USEPA Perspective

Existing numeric criteria for toxic pollutants in State standards should be identified. Toxic pollutants are those on the Section 307(a) list of priority pollutants. Criteria should also be adopted for any other pollutants for which EPA (under Section 304(a)) or the State have developed criteria (e.g., chlorine and ammonia). Mere reference to EPA criteria guidance in State standards is not an adequate substitute for numeric criteria, since it usually is not clear whether the reference is for screening purposes or as a basis to establish legally enforceable requirements.

#### Discussion

Section 303(c)(2) of the CWA as amended in 1987, includes specific requirements regarding criteria for §307(a) toxics in State standards; see Question 6. Question 5 does not presume that the requirements of Section 303(c)(2) have been implemented by the State, and is designed only to assist the reviewer in characterizing the current status of State standards regarding numeric criteria for toxics. This information provides the basis for determining the need for additional numeric criteria in Question 6.

#### QUESTION 6:

IN ACCORDANCE WITH §303(c)(2) AS AMENDED, HOW MANY NEW CRITERIA [FOR 307(a) TOXIC POLLUTANTS] DOES THE STATE PLAN TO ADOPT? WHAT TIME FRAME WILL BE USED FOR THIS ACTIVITY?

- toxics criteria to be added
- demonstration that certain criteria are not needed
- schedule

#### USEPA Perspective

The State should describe how it will determine the additional numeric criteria needed to comply with §303(c)(2), as amended, and indicate when the State plans to adopt these new criteria in their water quality standards. The State should also describe how it intends to demonstrate that such criteria are not needed. (See also Question 12).

#### Discussion

States should review all available data and other

information to make the necessary pollutant and water segment identifications. Such information and data should include: (1) ambient water monitoring data including those for sediment and aquatic life (e.g., fish tissue data); (2) NPDES permit applications and permittee self-monitoring reports; (3) effluent guidelines development documents, many of which contain Section 307(a)(1) priority pollutant scans; (4) pesticide and herbicide application inventories; (5) public water supply source monitoring data noting pollutants with Maximum Contaminant Levels (MCLs); and (6) any other relevant information on toxic pollutants collected by Federal, State, or interstate agencies, academic groups, or scientific organizations. Where the State's review indicates that there is a problem from the discharge or presence of toxic pollutants, the State should identify the pollutants and relevant segments. EPA realizes that these designations will be reviewed in the future during each triennial water quality standards review required by Section 303(c) of the Act. Therefore, the Agency is not encouraging the adoption of long lists of toxics with a concomitant burden of monitoring. The initial efforts should be focused on identifying problem areas and problem toxic pollutants (see also Question 12).

The amendments stipulate that whenever a State reviews water quality standards, it must adopt criteria for all toxic pollutants listed pursuant to Section 307(a) for which criteria have been published under Section 304(a)(1), the discharge or presence of which in the affected waters could reasonably be expected to interfere with those designated uses adopted by the State, as necessary to support such designated uses. Guidance or regulations to govern the implementation of this provision of the CWA is currently under development.

According to the November 17, 1987 draft guidance, the requirements may be met in three ways: 1) by adopting numeric water quality standards for all EPA criteria for §307(a) toxics regardless of whether the toxics are present, 2) by adopting specific numeric water quality standards for §307(a) toxics where they are present at harmful levels, or 3) by adopting a narrative water quality criterion for §307(a) toxic pollutants supported by a procedure applied to the narrative standard to develop a "critical ambient concentration" to be used as the basis for deriving total maximum daily loads, wasteload allocations, and subsequently NPDES permit limitations.

The above procedure is referred to in the draft guidance as a "translator mechanism." The translator mechanism relates to the derivation of numeric criteria (referred to in the guidance as "critical ambient concentrations") that are used to derive permit limits. The mechanism does not produce criteria that become part

of State water quality standards, nor does it include procedures necessary to translate the criteria into permit limits.

QUESTION 7:

HOW IS THE NARRATIVE STATEMENT USED TO CONTROL TOXICITY?

- chemical specific approach
- whole effluent approach
- "translator mechanism" for deriving numeric criteria, supported by a permit limit derivation procedure

USEPA Perspective

All States have narrative criteria (e.g., "free from toxic pollutants in toxic amounts") in their standards. A State toxic control program can implement controls for toxic pollutants, either through a chemical-specific or whole effluent approach, using the narrative criteria as the legal basis for permit requirements. The review should document how the State uses its narrative criteria to control toxics. The State should have (1) a procedure for translation of narrative criteria into numeric criteria (including specific chemicals and whole effluent toxicity) and (2) a documented procedure for writing permit limits based on the numeric criteria (see Section III-E). Documentation of these procedures is required in the water quality standards regulation at 40 CFR 131.11.

The review should document whether these procedures exist and include an overall assessment of their deficiencies, if any.

Discussion

With respect to Questions 5, 6, and 7, an effective water quality standards program should include both the numeric and narrative approaches. Chemical and biological indicators should be analyzed in light of site-specific information and fine-tuned to provide parallel protection. Flexible application of both approaches will address the wide range of toxics problems and ensure that all available methods are employed to control toxicity.

Numeric criteria can be used to limit specific chemicals where the cause of toxicity is known or for protection against potential human health impacts. The narrative standard can be the basis for limiting toxicity where a specific toxic pollutant can be identified as causing the toxicity, but there is no numeric criterion in State standards. The narrative standards can also be used to limit whole effluent toxicity where it is not known which chemical or chemicals are causing the toxicity.

Acute and chronic toxicity units (TUs) are a mechanism for quantifying instream toxicity using the whole effluent

approach; see Section 2 of the TSD. The State may also use an ambient standard applied to the effluent to control acute toxicity. For example, a State may employ a percentage of the 96 hour LC50 bioassay to address acute toxicity. The procedure to implement the narrative criteria using a whole effluent approach should specify the testing procedure, the duration of the tests (acute vs. chronic) and the test organism(s), and the frequency of testing required.

QUESTION 8:

ARE SITE-SPECIFIC CRITERIA USED TO CONTROL TOXICS AND ARE THEY FORMALLY PROMULGATED IN STATE STANDARDS?

USEPA Perspective

If site-specific criteria are used to control toxicity, such criteria must be subjected to public comment and EPA approval prior to their use in setting permit requirements [CWA §303(c)]. The State should briefly describe the process for development and adoption of site-specific criteria.

QUESTION 9:

HOW DOES THE STATE USE ANTIDegradation AND ANTIBACKSLIDING TO CONTROL TOXICITY?

USEPA Perspective

States should have clearly documented policies and procedures for implementing antidegradation and antibacksliding that conform to the requirements of the amendments to the CWA in Sections 303(d) and 402.

Discussion

State policies and procedures on antidegradation and antibacksliding are important to an overall review of the States toxics control program. Some States may implement a stringent antidegradation policy as an integral part of their toxics control programs which might require detailed review. It is important, at a minimum, for States to have a good understanding of federal requirements in this area, since EPA may have to veto State permits that do not conform to the relevant rules and procedures.

Water quality standards, WLAs and permit limitations must conform to existing requirements governing both antidegradation and antibacksliding.

QUESTION 10:

DO STATE STANDARDS INCLUDE BOTH ACUTE AND CHRONIC CRITERIA FOR TOXICS AND A MIXING ZONE POLICY? WHERE MUST CRITERIA BE MET?

- mixing zone policy
- acute criteria applied at the end-of-pipe in the absence of a high rate diffuser or other site-specific information
- chronic criteria applied after mixing

#### USEPA Perspective

EPA's national criteria recommendations include values for both acute and chronic aquatic life protection; only chronic criteria recommendations have been established to protect human health. Chronic aquatic life criteria should be met at the edge of the mixing zone. The acute criteria should be met (1) at the end-of-pipe if mixing is not rapid and complete and a high rate diffuser is not present or (2) in the mixing zone if mixing is rapid and complete or a diffuser is present. See Section 5 of the TSD.

#### Discussion

EPA has not established a national policy specifying the point of application in the receiving water that should be used with human health criteria.

#### QUESTION 11:

DO STATE WATER QUALITY STANDARDS SPECIFY DURATION AND EXCEEDENCE FREQUENCY?

- acute criteria as a one-hour average
- chronic criteria as a 4-day average
- addressed through the critical design flow
- other (specify)

#### USEPA Perspective

EPA recommends that criteria define duration and frequency: acute criteria applied as a one-hour average, and chronic criteria as a 4-day average, each not exceeded more than once in 3 years on the average. See Section 2 and Appendix D of the TSD and EPA guidance on design flow (Question 22). Longer averaging periods are recommended for human health criteria since these criteria assume a lifetime exposure.

#### Discussion

Defining water quality criteria with an appropriate duration (averaging period) and frequency of exceedence helps to ensure that criteria are appropriately translated into permit requirements. Duration and frequency may be defined in the design flow appropriate to the criterion. However, in these cases, the State should provide an evaluation that the selected design flow approximates the recommended duration and frequency.

### C. Identification of Waters in Need of Toxics Control

State water quality assessment programs are critical to the success of a State toxics control program. States must have a procedure for identifying which of their waters are in need of toxics control. Follow-up monitoring to assess the effectiveness of control is also necessary.

This subsection documents a State's ongoing procedures for identifying and addressing waters needing toxics controls. Guidance for the review of a State program to meet the additional requirements relating to identification of waters of Section 304(1) of the CWA as amended is contained in Question 15.

#### QUESTION 12:

HOW DOES THE STATE IDENTIFY AND DOCUMENT WATERS IN NEED OF TOXICS CONTROLS?

- assessment includes aquatic life and human health
- assessment includes data collection by States and permittees
- fixed stations versus intensive surveys
- screening versus data collection

#### USEPA Perspective

All States are required to assess all of their waters and document water quality problems in §305(b) reports. States are also required to identify specific waters whose uses are adversely affected by toxic pollutants in accordance with §303(d) and §304(1) as amended. The State should have a comprehensive strategy for identifying toxics problems related to aquatic life and human health protection. States need to have or be developing screening systems to determine which of these factors requires greatest emphasis in particular settings. While no specific strategy for identifying and documenting waters in need of toxics controls is suggested since a number of approaches are valid, the review should document the State strategy and the State strategy should take advantage of all reasonably available sources of information.

#### Discussion

The review should assess the relative role of ambient monitoring efforts (including fixed stations and intensive surveys), screening activities, detailed monitoring programs and monitoring activities conducted by the State and permittees. While aquatic life impacts are probably the most widespread and therefore require greater coverage statewide, the State should also be assessing human health impacts in particular settings.

Many federal and State agencies, as well as some private parties, such as universities, have information on water quality, fishery trends, recreation, and other water uses. These agencies should be consulted and their data evaluated as part of the State's assessment process.

QUESTION 13:

WHAT ARE THE RELATIVE ROLES OF CHEMICAL AND BIOLOGICAL MONITORING IN THE ASSESSMENT PROGRAM?

USEPA Perspective

States should have a comprehensive monitoring program which includes both chemical and biological monitoring.

Discussion

Chemical monitoring is the primary source of information used by States to identify toxics problems. Chemical monitoring is crucial in waters used as public water supplies. Biological monitoring (both ambient and effluent) is a critical ingredient in the State's assessment of waters needing toxics controls, particularly in waters of high ecological value. EPA has found ambient toxicity testing and biosurveys to be particularly useful for identifying toxic impact areas; see Appendix C of the TSD.

QUESTION 14:

WHAT TYPE OF SYSTEM IS USED TO PLAN AND SCHEDULE WATER QUALITY ASSESSMENTS FOR TOXIC POLLUTANTS AND TOXICITY?

- permit issuance/reissuance requirements
- basinwide surveys
- converting from permit issuance basis to basinwide approach

USEPA Perspective

The State should have a systematic procedure for scheduling monitoring activities to identify toxics problems and describe how existing data are used to identify problems and schedule surveys. The review should describe how the State selects and schedules the types of monitoring to be performed at a particular site.

Discussion

From both cost-effectiveness and WLA perspectives, basin-wide assessments are preferred to permit-by-permit assessments.

QUESTION 15:

WHAT PERCENTAGE OF ALL THE STATE'S WATERS HAVE BEEN OR WILL BE ASSESSED TO DEVELOP THE LISTS OF WATERS REQUIRED BY §304(1)(1)(A) and (B)? FOR SEGMENTS LISTED UNDER §304(1)(1)(B), HAS THE STATE IDENTIFIED SPECIFIC POINT SOURCES AND AMOUNTS OF TOXIC POLLUTANTS? IF NOT, WHAT IS THE SCHEDULE FOR DOING SO?

- §304(1)(A)(i) list
- §304(1)(A)(ii) list
- §304(1)(B) list
- schedule for developing lists

USEPA Perspective

The State should be proceeding in accordance with a schedule to develop three lists of waters as required by §304(1)(1)(A) and (B) of the CWA. These lists should be reported to EPA into the 305(b) Waterbody system by April 1, 1988. For those waters on the §304(1)(1)(B) list, the State should also develop and submit by April 1, 1988, a list of point sources causing impacts which are to be controlled through individual control strategies.

Discussion

The listing requirements under paragraph (A) form the basis for a long-term program where waters are regularly screened for toxics or nontoxics problems which adversely impact water quality and prevent the attainment of standards and/or uses. All authorities under the CWA are to be employed when developing controls for sources on the two lists of waters required by paragraph (A). CWA sections 301(b)(1)(C), 303(c), 303(d), 303(e), 401 and 402(a), as well as implementing regulations, require listing of waters and control measures for all pollutants (including chlorine, ammonia, whole effluent toxicity, and other pollutants) to achieve specific water quality objectives.

Paragraph (B) of §304(1) requires States to focus on developing a list of all waters for which the States do not expect applicable water quality standards to be achieved after implementation of technology-based effluent limits and pretreatment standards, due entirely or substantially to the point source discharges of §307(a) priority pollutants. This list identifies waterbodies for which point sources and amounts of pollutants will be identified and individual control strategies prepared.

QUESTION 16:

WHICH OF THE FOLLOWING ANALYTICAL CAPABILITIES ARE AVAILABLE?

- atomic absorption
- gas chromatograph/mass spectrometer
- acute/chronic biological toxicity testing
- biosurveys
- Other

USEPA Perspective

The State should have in-house, be developing, or be able to contract out the above analytical capabilities in support of its assessment program.

QUESTION 17:

DOES THE STATE HAVE A MANAGEMENT SYSTEM TO TRACK THE STATUS OF EACH WATERBODY ASSESSED? (BRIEFLY DESCRIBE.)

- EPA §305(b) Waterbody System
- other

USEPA Perspective

The State should have an adequate management system to track the status of waterbodies. The system should keep track of which waters have been assessed, the results, and the corrective actions needed. The system should be used for planning and program management and for preparing the State's 305(b) report. The State should indicate plans to coordinate its data management with the 305(b) Waterbody System developed by EPA's Office of Water Regulations and Standards.

QUESTION 18:

DOES THE STATE CONDUCT OR REQUIRE ASSESSMENTS TO EVALUATE THE EFFECTIVENESS OF TOXICS CONTROLS?

USEPA Perspective

The State should conduct assessments after controls to determine their effectiveness. There are several approaches for evaluating the effectiveness of toxics controls. The assessments may be part of a survey program or part of the §305(b) process. In addition, permittees may be required to perform them as part of their permit requirements. Consideration of intermedia pollutant transfer resulting from control of surface water toxics is desirable.

## Discussion

State resources are generally limited for these types of assessments. However, it is important to recognize that there is a degree of uncertainty associated with any control effort. It is advantageous to perform these assessments on waterbodies where significant control programs have been implemented. The information is useful in documenting success stories and identifying the need for modification to the State's control program.

Ideally, assessments to evaluate the effectiveness of controls should be based on data regarding changes in beneficial uses as well as chemical indicators.

#### D. Exposure Assessment and Wasteload Allocation Procedures

This subsection reviews the States wasteload allocation (WLA) process. The wasteload allocation process provides a quantitative link between water quality standards and permits. The WLA is a pollutant loading which permit writers seek to achieve when writing a permit to limit pollutants to meet water quality standards. Different approaches will be used to prepare WLAs for different types of receiving waters, types of pollutant and exposure pathways.

#### QUESTION 19:

HOW IS THE STATE'S MIXING ZONE POLICY (IF AVAILABLE) USED IN THE WLA TO CONTROL TOXICITY?

- prevention of acute toxicity within the mixing zone
- limitation on the dimensions of the mixing zone

#### USEPA Perspective

The State mixing zone policy and WLA procedures should include two basic elements applicable to toxic discharges. First, lethal concentrations should be prohibited within the mixing zone. Acute toxicity is of particular concern because organisms passing through the mixing zone can be exposed to lethal concentrations of toxicants in a partially diluted effluent. Where mixing is not rapid and complete, lethal concentrations may be avoided by using a high rate diffuser or by application of acute criteria at the end-of-pipe. (See Question 10). Second, the physical dimensions of the mixing zone should be limited to allow fish passage in free-flowing streams and to ensure that a certain percentage of a waterbody does not exceed acute and chronic criteria. See Section 5 of the TSD and the 1983 Water Quality Standards Handbook.

#### QUESTION 20:

HOW DOES THE STATE DETERMINE WHETHER A MIXING ZONE ANALYSIS IS REQUIRED FOR A SPECIFIC WATERBODY? HOW ARE MIXING ZONE DIMENSIONS ESTABLISHED?

- types of waterbodies requiring a mixing zone analysis
- types of analytical techniques used

#### USEPA Perspective

The State should define where a mixing zone analysis is required and employ adequate and appropriate tools for determining the dimensions of mixing zones. Analysis of the mixing zone should be performed under critical

conditions (usually low flow, or low tide for marine or estuarine systems).

### Discussion

A mixing zone analysis may be required for certain WLAs, such as those involving large waterbodies; e.g. lakes and estuaries. Tracer studies, predictive models or desktop calculations can be used to estimate the dimensions of the wastewater plume. These techniques 1) ensure that the discharge conforms to the State's allowable mixing zone dimensions, 2) prevent the mixing zone from extending into critical resource areas and 3) provide boundary conditions for the completely mixed WLA models.

### QUESTION 21:

HOW MANY AND WHAT TYPE OF WASTELOAD ALLOCATIONS ARE ROUTINELY PREPARED FOR TOXICS?

- single WLA (chronic) for human health
- dual analysis (acute and chronic) for aquatic life
- chemical-specific versus whole-effluent approaches

### USEPA Perspective

For steady state modeling of aquatic life, two WLAs are required -- one for acute toxicity and one for chronic toxicity -- and apply to both the chemical specific or whole effluent approach. The most limiting WLA is used as the basis for setting permit requirements. A single WLA is only appropriate in cases where chronic criteria are applied at the end-of-pipe.

Dynamic models, incorporating consideration of daily variations in physical and chemical parameters, are more accurate in reflecting or predicting exposure provided adequate data exist. Few States currently have fully developed capabilities to perform dynamic modeling. However, the tools to do so are now more widely available than in the past. The Agency currently supports DYNTOX, WASTOX, EXAMS and other probabilistic or simulation models. States may use these models where site-specific complexities call for more accurate models than the simplest steady state dilution model.

For human health, see Question 23.

QUESTION 22:

WHAT DESIGN FLOW IS SPECIFIED IN STEADY STATE MODELING OF RIVERS, OR FLOW INTO ESTUARIES AND BAYS FOR AQUATIC LIFE? ARE SEASONAL FLOWS (AND WLAS) CONSIDERED?

- 1Q10 applied to acute criteria
- 7Q10 applied to chronic criteria
- Other

USEPA Perspective

States can use either a hydrologically-based (1Q10 and 7Q10 for acute and chronic criteria) or a biologically-based design flow; see Technical Guidance Manual for Performing Waste Load Allocations, Book VI: Design Conditions, Chapter I - Stream Design Flow for Steady-State Modeling, developed by the Office of Water Regulations and Standards.

Discussion

If seasonal flows and WLAs are prepared, the State should have some mechanism for ensuring that the seasonal WLAs do not increase the frequency with which exceedances are allowed; e.g. once in three years.

QUESTION 23:

WHAT DESIGN FLOW IS SPECIFIED IN STEADY-STATE MODELING OF RIVERS FOR HUMAN HEALTH?

USEPA Perspective

The State should have a procedure for modeling human health criteria and preparing WLAs, including the selection of a design flow. Because a lifetime exposure period is used for human health criteria, the design flow used to protect human health should reflect longer term exposure periods than aquatic life.

Discussion

Human health protection involves specific exposure considerations which affect how WLAs are subsequently calculated. There is currently no established procedure for selecting a design flow and performing WLAs for human health criteria. The TSD recommends that a 30Q5 design flow be used for human health criteria. However, this design flow may result in overly stringent permit requirements if the receiving water at the edge of the mixing zone is not directly used as a public water supply or as a source of fish for human consumption.

QUESTION 24:

ARE POLLUTANT CONTRIBUTIONS FROM OTHER POINT SOURCES AND NONPOINT SOURCES CONSIDERED IN MODELS FOR TOXICS?

- background loadings
- in-place pollutants (sediments)
- other point sources

USEPA Perspective

The State should consider other point sources and nonpoint source loadings in developing WLAs for water quality-based permits, in accordance with EPA regulations [(40 CFR 130.2 (f) - (h))]. Therefore, models used to develop WLAs should incorporate other point sources and nonpoint sources where appropriate.

Discussion

Other point sources and nonpoint source loadings generally need to be considered only to the extent that they affect modeling under critical conditions. In-place pollutants may be of particular significance in certain settings and should be incorporated in WLA models where necessary.

QUESTION 25:

DOES THE STATE PERFORM WLA MODELING USING WHOLE EFFLUENT TOXICITY? WHAT PROCEDURES ARE USED IF DIFFERENT FROM THE CHEMICAL-SPECIFIC APPROACH?

USEPA Perspective

The State should treat whole effluent toxicity like any other parameter. The review should document any unique WLA procedures using the whole effluent approach.

Discussion

Models that incorporate fate and transport mechanisms for WLAs involving whole effluent toxicity have not been fully developed. Many States have been reluctant to conduct modeling for whole effluent toxicity.

## E. Effluent Characterization and Permitting Procedures

Effluent characterization provides the data needed to determine whether or not the discharge of toxic materials will cause adverse impacts upon the receiving waters. Permit writers should make use of all available data; however, limits may still be derived in the absence of definitive effluent characterization. Permit limitations should be developed which are protective of both aquatic life and human health.

This subsection reviews the procedures for generating data on effluent toxicity, water quality-based permit limit derivation procedures, development of monitoring requirements, and use of toxicity reduction evaluations. The section also contains a question (29) regarding the State's progress in developing individual control strategies (ICSS) involving permit modifications or reissuances pursuant to §304(l)(1)(D) of the CWA.

### QUESTION 26:

WHAT TYPES OF INFORMATION ARE REQUIRED OF PERMITTEES AND USED BY PERMIT WRITERS? SPECIFY WHETHER USED ROUTINELY OR CASE-BY-CASE, AND WHETHER FOR INDUSTRIAL OR MUNICIPAL PERMITTEES.

- chemical-specific data
- effluent toxicity data
- receiving stream data
- human health data
- aquatic toxicity, mammalian toxicity, etc.

### USEPA Perspective

The reviewer should determine which data are used routinely and recommend the use of any important data sources which are currently not being used. The TSD's Section 3 should be used in establishing toxicity testing requirements.

### QUESTION 27:

ARE WATER QUALITY-BASED PERMIT DERIVATION PROCEDURES SPECIFICALLY INCLUDED IN THE STATE'S TOXICS CONTROL PROGRAM? IF SO, ARE THEY INCLUDED DIRECTLY OR BY REFERENCE?

### USEPA Perspective

The State should specifically include written water quality-based permit derivation procedures in its toxics control program to derive permit limits for toxic pollutants from the WLAs. It is important that the State procedures be entirely documented, including procedures for calculation of values for protection of aquatic life and human health, and use of the most stringent WLA to derive the permit limitations. The PWG, Section 3, and the TSD, Section 6

and Appendix E, contain recommended permit limit derivation procedures.

QUESTION 28:

ARE PROCEDURES DESIGNED TO EXPRESS LIMITS BOTH IN TERMS OF CHEMICAL-SPECIFIC LIMITATIONS AND WHOLE EFFLUENT TOXICITY LIMITATIONS? DESCRIBE BRIEFLY WHAT THESE PROCEDURES INCLUDE.

- chemical-specific and whole effluent limitations procedures
- consideration of effluent variability
- methods for translation of WLA results into maximum daily and average monthly values
- identification of the limiting WLA

USEPA Perspective

Procedures to express limits in terms of both specific chemicals and whole effluent toxicity should be documented and used by permit writers. Procedures should include: 1) considerations of effluent variability, 2) methods for translation of WLA output into maximum daily and average monthly values, and 3) evaluation of which WLA (acute or chronic) is most limiting. The recommended limit derivation procedure is described in the PWG, Section 3, Permitting Procedures, and Section 6 of the TSR.

Discussion

Experience to date has shown that neither a chemical-specific or a whole effluent approach alone is fully protective. Therefore, an integrated, chemical-specific and whole effluent approach to limits is recommended. For limitations on both specific chemicals and whole effluent toxicity, limitations expressed as both maximum daily and monthly average limits should be used.

QUESTION 29:

FOR SEGMENTS ASSESSED UNDER §304(1)(1)(B), HOW MANY INDIVIDUAL CONTROL STRATEGIES (ICSS) HAVE BEEN PREPARED TO DATE? WHAT IS THE SCHEDULE FOR PREPARING STRATEGIES TO MEET THE 2/4/89 DEADLINE? WHAT PROGRESS IN ISSUING ICSS INVOLVING MODIFIED CURRENT PERMITS OR REISSUED EXPIRED PERMITS HAS BEEN MADE?

- ICSSs needed
- schedule

USEPA Perspective

The State should be proceeding on a schedule to develop ICSSs for all point sources identified under §304(1)(1)(C) by 2/4/89 in accordance with the following discussion.

## Discussion

An individual control strategy (ICS) for a segment should consist of NPDES permits for all point sources in the segment under consideration and documentation that such permits adequately consider the effects of the other discharges to that segment. To the maximum extent possible, the ICS submission should consist of final NPDES permit(s) which incorporate the necessary limitations. This will involve modifying and reopening permits which have not yet expired in cases where additional controls are necessary.

### QUESTION 30:

WHAT FACTORS ARE CONSIDERED IN ESTABLISHING COMPLIANCE MONITORING REQUIREMENTS FOR PARAMETERS LIMITED IN THE PERMIT?

#### USEPA Perspective

The State should consider and adequately address the factors listed in Section 7 of the TSD when establishing requirements for frequency, type of sample, and testing, and should also consider as many other factors as are relevant. Further discussions of the suggested monitoring requirements are in the PWG's Section 3.1.

### QUESTION 31:

IS MONITORING FOR PARAMETERS NOT LIMITED IN PERMITS REQUIRED? (E.G., INFORMATION GATHERING)? IF SO, DESCRIBE. IS SUCH MONITORING REQUIRED ROUTINELY OR ON A CASE-BY-CASE BASIS?

#### USEPA Perspective

Where appropriate, monitoring without limits should be required to gather information for developing future permit limits. However, the Clean Water Act requires all State standards to be met, and NPDES permits must be written to achieve this requirement. Monitoring alone or monitoring which emphasizes data generation to the exclusion of eventual limit derivation is not acceptable. "Triggers" for permit limit development based on monitoring data should be clearly expressed: for example, approach or exceedance of water quality standards and/or existence of ambient toxicity.

## Discussion

Permits may be issued with data generation requirements which augment the limits imposed on other parameters. Requirements to conduct biological assessments, toxicity reduction evaluations, and in-plant monitoring are all authorized under Section 308 of the Clean Water Act, and corresponding State statutes.

Permittees should be required to collect data when the regulatory authority believes that data on effluent toxicity or individual toxicants are necessary before specific control requirements can be set and where such data cannot be collected prior to permit limit development. One example is where longer term data (e.g., for several seasons) are needed. Whenever possible, State agencies should collect data prior to permit issuance. The need for gathering additional data through monitoring requirements should be predicated on significant doubt regarding the presence of a substance or effluent toxicity.

All types of toxics effects can be addressed. For example, the permit writer may set monitoring requirements for human health concerns and at the same time, place limits for aquatic toxicity in the permit. The permit containing the data gathering requirements should include a statement that the permit will be modified or revoked and reissued if the data indicate violation of State water quality standards. See the TSD, Section 6, and the PWG, Section 3.1.

QUESTION 32:

ARE TOXICITY REDUCTION EVALUATIONS (TRES) REQUIRED FOR IDENTIFYING AND ADDRESSING THE TOXIC COMPONENTS OF EFFLUENTS IN PERMITS?

USEPA Perspective

When specific chemical or toxicity tests show that a permittee's discharge contains toxicity at unacceptable levels, the Regional Office or the State agency with responsibility for that permit should require the permittee to reduce toxicity so that no harmful effects occur instream. Toxicity Reduction Evaluations (TRES) are studies which use toxicity testing and physical and chemical analysis of effluents to determine causative toxicants or treatment methods which will afford compliance with either toxicity or chemical-specific permit limits. TRES should be required from permittees where either toxicity-based permit limits are violated or effluent toxicity is demonstrated.

TRES as special conditions alone have been used by some permitting authorities. However, TRE requirements are most effective when tied to permit limits because limits are binding and enforceable and provide a target for toxicity reduction efforts. The TSD's Section 6 and the PWG's Section 5 address TRES.

### QUESTION 33:

WHAT SPECIFIC REQUIREMENTS APPLY TO TRES?

- triggers
- schedules
- reporting requirements
- follow-up

#### USEPA Perspective

Although case-by-case language is acceptable, development of standard "boilerplate" language may facilitate the use of TRES. The standard language should specify what triggers the TRE, a schedule, reporting requirements, and any requisite follow-up activities. Triggers for initiating a TRE may be expressed as violations of established limits or as specific patterns of toxicity that should be reduced. Once the TRE is initiated, a schedule must be established and should be included in a permit or administrative order. Section 5 of the PWG addresses TRES.

#### Discussion

TRES can be required in a permit as an initial response to a permit limit violation or through an enforcement order as part of injunctive relief for a pattern of noncompliance. The final milestone of all TRES should be a specific date to attain compliance with the applicable limits.

APPENDIX A: STATE WATER QUALITY-BASED TOXICS CONTROL PROGRAM  
FACT SHEET

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1. State delegation:

Date of NPDES delegation:  
Date of Pretreatment program delegation (if applicable):  
Date of Federal facility program delegation (if applicable):

2. Number of direct industrial discharges by type; i.e., pulp and paper, food processing, etc.

3. Numbers of permits/pretreatment programs

Major POTWs:  
Minor POTWs:

Major non-POTWs:  
Minor non-POTWs:

Total number of permits:

Approved pretreatment programs:  
Pretreatment programs requiring approval:  
Number of categorical users discharging to non-pretreatment POTWs (<5 mgd):

4. Status of the State's technology-based program

Percentage of all municipal dischargers  $\geq$  secondary treatment  
Percentage of all industrial discharges  $\geq$  BCT/BAT:

5. Number of major POTW permits reviewed for limits for toxics that are primarily water quality-based; number of resultant limits; specify by pollutant.

6. Number of major non-POTW permits reviewed for limits for toxics that are primarily water quality-based; number of resultant limits; specify by pollutant.

7. Number of permits with biological testing requirements; number permit applications requiring biological testing.

Number  
Type (acute/chronic, effluent/ambient)  
Organism(s) used

8. Number of permits with TRES required:  
Number of permits with completed TRES:

APPENDIX B: STATE WATER QUALITY-BASED TOXICS CONTROL PROGRAM  
REVIEW CHECKLIST

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State Authority and Legal Mechanisms for Toxics Control

1. Under what legal mechanism(s) is surface water toxics control institutionalized?
  - State Law
  - State Regulation
  - State/Regional Policy
  - State/Regional Guidance
2. Describe the depth and coverage of the State's toxics control authority and legal mechanism(s).
  - standards to permits process
  - aquatic life and human health protection
3. What institutional deficiencies exist within the State's toxics control program? What plans are there to address the deficiencies?

Water Quality Standards

4. Which of the following are protected in State water quality standards?
  - aquatic life
  - human health
  - terrestrial life (wildlife and livestock)
  - terrestrial plants (irrigation)
5. What numeric criteria for toxics are formally adopted in State standards?
  - specific criteria numbers in State standards
  - in the absence of State numeric criteria, a process for deriving specific numeric criteria is promulgated in State standards
  - reference to Federal criteria [304(a)] in standards
  - none of the above
6. In accordance with §303(c)(2) as amended, how many new criteria [for 307(a) toxic pollutants] does the State plan to adopt? What time frame will be used for this activity?
  - toxic criteria to be added
  - demonstration that certain criteria are not needed
  - schedule for list

7. How is the narrative statement used to control toxicity?
  - chemical specific approach
  - whole effluent approach
  - "translator mechanism" for deriving numeric criteria, supported by a permit limit derivation procedure
8. Are site-specific criteria used to control toxics and are they formally promulgated in State standards?
9. How does the State use antidegradation and antibacksliding to control toxicity?
10. Do State standards include both acute and chronic criteria for toxics and a mixing zone policy? Where must criteria be met?
  - mixing zone policy
  - acute criteria applied at the end-of-pipe in the absence of a high rate diffuser or other site-specific information
  - chronic criteria applied after mixing
11. Do State water quality standards specify duration and exceedence frequency?
  - acute criteria as a one-hour average
  - chronic criteria as a 4-day average
  - addressed through the critical design flow
  - other (specify)

#### Identification of Waters in Need of Toxic Control

12. How does the State identify and document waters in need of toxics controls?
  - assessment includes aquatic life and human health
  - assessment includes data collection by States and permittees
  - fixed station versus intensive surveys
  - screening versus data collection
13. What are the relative roles of chemical and biological monitoring in the assessment program?
14. What type of system is used to plan and schedule water quality assessments for toxic pollutants and toxicity?
  - permit issuance/reissuance requirements
  - basinwide surveys
  - converting from permit issuance basis to basinwide approach

15. What percentage of all the State's waters have been or will be assessed to develop the lists of waters required by §304(1)(1)(A) and (3)? For segments listed under §304(1)(1)(B) has the State identified specific point sources and amounts of toxic pollutants? If not, what is the schedule for doing so?
- §304(1)(A)(i) list
  - §304(1)(A)(ii) list
  - §304(1)(3) list
  - schedule for developing lists
16. Which of the following analytical capabilities are available?
- atomic absorption
  - gas chromatograph/ mass spectrometer
  - acute and chronic biological toxicity testing
  - biosurveys
  - Other
17. Does the State have a management system to track the status of each waterbody assessed? (Briefly describe)
- EPA §305(b) Waterbody System
  - other
18. Does the State conduct or require assessments to evaluate the effectiveness of toxics controls?

Exposure Assessment and Wasteload Allocation Procedures

19. How is the State's mixing zone policy (if available) used in the WLA to control toxicity?
- prevention of acute toxicity within the mixing zone
  - limitation on the dimensions of the mixing zone
20. How does the State determine whether a mixing zone analysis is required for a specific waterbody? How are mixing zone dimensions established?
- types of waterbodies requiring a mixing zone analysis
  - types of analytical techniques used
21. How many and what type of wasteload allocations are routinely prepared for toxics?
- single WLA (chronic) for human health
  - dual analysis (acute and chronic) for aquatic life
  - chemical-specific versus whole effluent approaches

22. What design flow is specified in steady state modeling of rivers, or flows into estuaries and bays, for aquatic life? Are seasonal flows (and WLAs) considered?
  - 1Q10 applied to acute criteria
  - 7Q10 applied to chronic criteria
  - other
23. What design flow is specified in steady state modeling of rivers for human health?
24. Are pollutant contributions from nonpoint sources considered in models for toxics?
  - background loadings
  - in-place pollutants (sediments)
  - other point sources
25. Does the State perform WLA modeling using whole effluent toxicity? What procedures are used if different from the chemical-specific approach?

#### Effluent Characterization and Permitting Procedures

26. What types of information are required of permittees and used by permit writers? Specify whether used routinely or case-by-case, and whether for industrial or municipal permittees.
  - chemical-specific data
  - effluent toxicity data
  - receiving stream data
  - human health data
  - aquatic toxicity, mammalian toxicity, etc.
27. Are water quality-based permit development procedures specifically included in the State's toxics control program? If so, are they included directly or by reference?
28. Are procedures designed to express limits both in terms of chemical-specific limitations and whole effluent toxicity limitations? Describe briefly what these procedures include.
  - chemical-specific and whole effluent limitations procedures
  - consideration of effluent variability
  - methods for translation of WLA results into maximum daily and average monthly limits
  - identification of the limiting WLA

29. For segments listed under §304(1)(1)(3), how many individual control strategies (ICSS) have been prepared to date? What is the schedule for preparing strategies to meet the 2/4/89 deadline? What progress in issuing ICSS involving modified current permits or reissued expired permits has been made?
- ICSSs needed
  - schedule
30. What factors are considered in establishing compliance monitoring requirements for parameters limited in the permit?
31. Is monitoring for parameters not limited in permits required? (e.g.: information-gathering)? If so, describe. Is such monitoring required routinely or on a case-by-case basis?
32. Are Toxicity Reduction Evaluations (TRES) required for identifying and addressing the toxic components of effluents in permits?
33. What specific requirements apply to TRES?
- triggers
  - schedules
  - reporting requirements
  - follow-up

APPENDIX C: Sample State Summary, Action Items and Letter

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Sample Letter

Dear \_\_\_\_\_:

Thank you for hosting the Environmental Protection Agency (EPA) and (State) review of the State's toxics control program on (date). I understand that the discussion was constructive, and that there was agreement on many of the items discussed. Enclosed is a brief summary of the State's toxics control program and a list of "action items" prepared by the EPA participants. The list includes input from representatives from Headquarters, the Regional Office and the (State) Office. This list represents EPA's guidance to you for the preparation of your "action plan" for improving the State's toxics control program.

The State program for controlling toxic pollutants has some notable strong points. In particular, \_\_\_\_\_ . While the State has a program for monitoring and identifying problems caused by toxic pollutants, further improvement, through additional ambient and effluent monitoring, (including toxicity testing) would strengthen this key element of your program.

I understand that (State) relies primarily on the narrative provision of its standards regulation (i.e. "free from toxics in toxic amounts") and a case-by-case assessment approach to control toxicity. The new Clean Water Act Amendments of 1987 require more explicit documentation of toxic problems and control procedures. The attached list of action items reflects areas where our staffs have discussed the need for explicit procedures to improve the State's ongoing program to meet the requirements of the new CWA Amendments. Major recommendations covered by the enclosed list include the following:

- ° Procedures for documenting and controlling human health and bioaccumulation problems.
- ° Adoption of numeric criteria in State standards and procedures for developing site-specific criteria.
- ° Application of acute and chronic criteria in the wasteload allocation (WLA) process.
- ° Procedures for translating WLA results into permits.
- ° Procedures for collecting and using toxicity testing data to write water quality-based permits and perform toxicity reduction evaluations.

The enclosed list of action items is organized by program area. I would appreciate your specifying in your action plan

those new initiatives you will undertake and the projected schedule for implementation of each item. The State's draft "Implementation Guidance" may serve as the basis for responding to these action items. Please provide your action plan to me by (date).

We fully appreciate that the action plan items I am suggesting will be an ambitious set of initiatives for your State. Please feel free to call on me for clarification or further discussion if you have any problems with these suggestions.

Sincerely,

\_\_\_\_\_, Director  
Water Management Division  
EPA, Region \_\_\_\_

Enclosure

## Sample Summary of State Toxics Control Program with Action Items

### Program Overview

In general, the (State) permit program for toxics is primarily technology-based. All industrial permits except one (ore production for metals) are technology-based and all are at BCT/BAT. All municipal permits except three (two for ammonia and one for chlorine) are technology-based and all are secondary treatment. The few water quality based permits are for aquatic life protection; there are no water quality-based permits for human health protection.

### Institutional Mechanisms

State law and regulation provide a broad mandate for water pollution control activities in general, including control of toxics. Documentation of the State's toxics control program is currently in draft form and scheduled to be finalized by the fall of 1987. Regional guidance is currently being drafted and addresses three subject areas related to toxics control; antidegradation, revision of water quality standards, and biomonitoring.

There is some overlapping authority between the State Department of Health and Environmental Sciences and the Departments of Agriculture and State Lands. However, this was not felt to be a problem. In summary, the State believes it has adequate authority for regulation of toxics.

#### Action Item:

- ° Complete Toxics Implementation Document

### Water Quality Standards

The State has no numeric criteria in the water quality standards. Although there are relatively few toxics problems, it is clear that additional criteria will be needed to comply with the CWA requirements to adopt criteria for §307(a) toxic pollutants which are interfering with designated uses.

Generally, chronic criteria are applied at the 7Q10 design flow; i.e. at the edge of the mixing zone. There is generally no analysis of acute toxicity; although acute toxicity was evaluated for two metal discharges.

#### Action Items:

- ° need numeric criteria for toxic pollutants in State standards, in accordance with §303(c)(2) as amended
- ° need two number criteria (acute/chronic) tied to mixing zones,
- ° need whole effluent criteria (i.e. TUA/TUC),
- ° need procedures for development of site-specific

criteria where toxics are "naturally occurring", and

- ° need to address human health and biocaccumulation in standards program, including definition of risk levels.

#### Identification of Waters in Need of Toxics Control

The 305(b) process is the primary focus of monitoring activities aimed at identifying water bodies in need of toxics control. Information in the 305(b) report is also supplemented by State assessment priorities including permit renewals, POTW upgrades, and special priority water bodies. The State is planning to use the severity index system developed by the Region to identify problems. Some special "before and after" assessments have also been performed. The State has developed an appropriate schedule for assessing all waters in accordance with §304(l) of the CWA.

#### Action Item:

- ° Increase activities to identify toxics problems through ambient and effluent chemical and biological monitoring and incorporate the results of the activities into the lists developed pursuant to §304(l).

#### Exposure Assessment and Wasteload Allocations

Generally, WLA procedures are not well documented. The State applies chronic criteria at the 7Q10, with nonpoint sources addressed in the background levels used to implement their non-degradation policy. Acute toxicity is not addressed in WLA procedures.

#### Action Items:

- ° Need separate WLA and design flow for acute toxicity.
- ° Need WLA, including selection of design flow, for human health criteria.

#### Effluent Characterization and Permitting Procedures

The State currently uses various sources of information to identify toxics in point source discharges. The State primarily supports chemical specific limits for toxics based upon application information and information on specific chemicals monitored in the receiving water. In-stream studies are sometimes required of permittees. The State has been reluctant to require effluent toxicity testing of its permittees.

There are no formally documented permit derivation procedures except as noted in the draft implementation guidance. Derivation of permit limits based upon wasteload allocations are transferred directly into permit limits on a case-by-case basis. In general, the chronic criteria is applied at 7Q10 and the State does not currently require toxicity reduction evaluations.

The State will write individual control strategies for NPDES permittees discharging to waters impacted by point source dischargers of toxic wastewaters (the Paragraph B list) where those permittees have been shown to cause or contribute to that impact. No significant problems in complying with the 2/4/89 deadline are projected.

Action Items:

- ° Document procedures for translating WLAs into permits that include consideration of acute and chronic toxicity and effluent variability.
- ° Expand data generation requirements into permits, particularly effluent toxicity testing.
- ° Develop standard permit language for TRES and require TRES in permits, where appropriate.